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# CARNEGIE

## MAGAZINE

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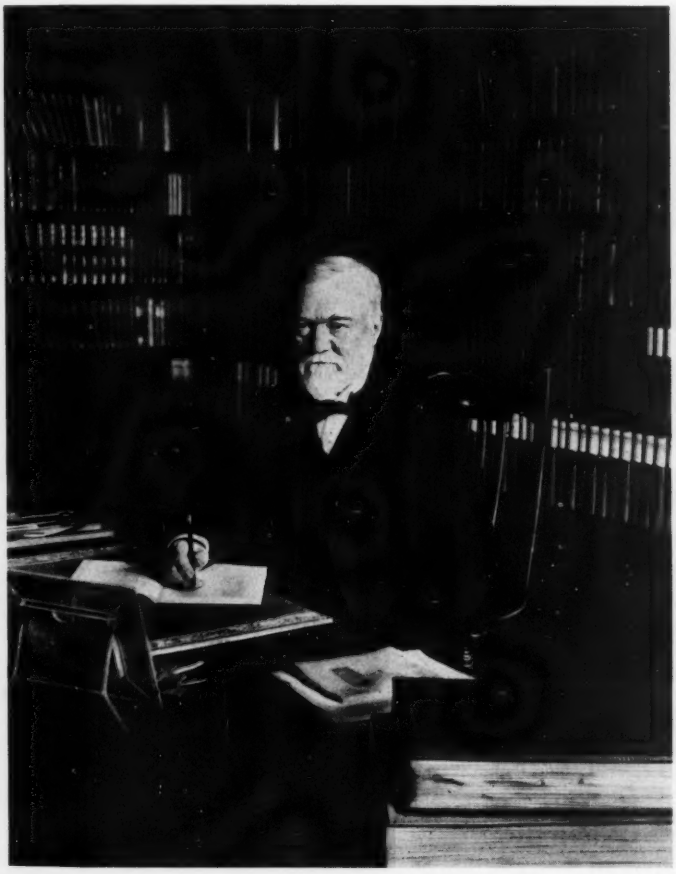
VOLUME XIX PITTSBURGH, PA., OCTOBER 1945 NUMBER 4



ANDREW CARNEGIE
1835-1919

# CARNEGIE MAGAZINE

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OFFICE OF THE PRESIDENT OF CARNEGIE INSTITUTE

WILLIAM FREW, Editor
JEANNETTE F. SENEFF, Editorial Assistant

VOLUME XIX NUMBER 4

OCTOBER 1945


## OUR LAST CHANCE

"A new era is upon us. Even the lesson of victory itself brings with it profound concern, both for our future security and the survival of civilization. The destructiveness of the war potential, through progressive advances in scientific discovery, has in fact now reached a point which revises the traditional concept of war.

"Men since the beginning of time have sought peace. Various methods through the ages have attempted to devise an international process to prevent or settle disputes between nations. From the very start workable methods were found in so far as individual citizens were concerned but the mechanics of an instrumentality of larger international scores have never been successful. Military alliance, balances of power, League of Nations, all in turn failed, leaving the only path to be by way of the crucible of war.

"The utter destructiveness of war now blots out this alternative. We have had our last chance. If we do not now devise some greater and more equitable system Armageddon will be at our door. The problem basically is theological and involves a spiritual recrudescence and improvement of human character that will synchronize with our almost matchless advance in science, art, literature, and all material and cultural developments of the past two thousand years. It must be of the spirit if we are to save the flesh."

—Remarks of General Douglas MacArthur as Supreme Allied Commander at the signing of the Japanese surrender documents aboard the U. S. S. Missouri, Tokyo Bay, Sunday, September 2, 1945.


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## CARNEGIE INSTITUTE

4400 Forbes Street

Hours: 10:00 A.M. to 6:00 P.M., weekdays
2:00 to 6:00 P.M., Sundays

OCTOBER 11, 8:15 P.M., IN MUSIC HALL
Celebration of the forty-ninth anniversary of Founder's Day.

## FINE ARTS GALLERIES

OCTOBER 11—DECEMBER 9
Painting in the United States, 1945
(During this exhibition the galleries will be open each weekday until 10:00 P.M.)

OCTOBER 11—DECEMBER 30
Current American Prints, 1945

## MUSEUM

The birds migrating south this month may be observed closely at the bird display on the first floor of the Museum.

Autumn foliage of this section is reproduced in the Pennsylvania bog exhibit in Botany Hall.

## MUSIC HALL

The weekend organ recitals by Marshall Bidwell will open Saturday evening, October 6, at 8:15 o'clock. The Sunday afternoon recital at 4:00 o'clock will begin a series of first-Sunday-of-the-month programs for young people. The organ recitals are free to the public and will continue throughout the winter.

## CARNEGIE LIBRARY

Hours: 9:00 A.M. to 10:00 P.M., weekdays
2:00 to 6:00 P.M., Sundays

NOVEMBER 5, 7:00 TO 10:00 P.M.
Fiftieth Anniversary Open House

Story hour in the Boys and Girls Room at Central Branch will begin on October 1 at 4:15 P.M., and will continue each Monday through the winter; storytelling will be featured after school on scheduled days at the Branches.

The Carnegie Institute, in the broadest sense, holds its possessions in trust for mankind and for the constant welfare and happiness of the race. Anyone, therefore, who by a gift of beautiful works of art, or objects of scientific value, or a donation to its financial resources, aids in the growth of these collections and the extension of its service, is contributing substantially to the glorious mission of the Institute.

# BOOKS ALIVE SINCE '95

*Celebrating Fifty Years of Library Service to the People of Pittsburgh*

By Ralph Munn
*Director, Carnegie Library of Pittsburgh*

Carnegie Library of Pittsburgh was fortunate in the time and circumstances of its establishment. By the year 1895, the modern public library movement was gaining momentum. The old-time librarian, he of the long beard and the skull cap who was concerned only with the safety of the books, had given way to his service-minded successor. Barriers were being removed, and the safety of the books subordinated to their use. The librarian was learning to look beyond his few scholarly and cultured patrons and to regard the whole community as potential readers. Even children had become people, in his view. Perhaps more startling in those days was the widening of the book collections, which had been largely restricted to belles lettres and other polite forms of literature. The bolder librarians were beginning to include books which reflected every human need and interest, even to the everyday job of earning a living.

Carnegie Library thus entered the scene with none of the hampering traditions of earlier days. It could, and did, build upon the freedom and expanding interests which had been established by older libraries.

Furthermore, this library escaped the slow and uncertain growth which characterizes most institutions. It sprang almost full-grown from the mind and purse of Andrew Carnegie. Beautifully housed, generously financed, and fully staffed, the Library was a going concern at the outset. Within five years, its book collection had reached 100,000 volumes, and readers were borrowing over 400,000 books annually from the Main Library and the five branches.

Foremost among the favorable factors in this Library's development was the staff which was attracted to Pittsburgh by the opportunity to build a great new library. Young, progressive, alert to every avenue of service, these men and women made the Carnegie Library of Pittsburgh the most conspicuous center of popular library development in the world.

The Library was equally fortunate in its Board of Trustees. Some were chosen by Andrew Carnegie from his own circle of associates; others were city officials, acting by virtue of their offices. Inspired by Mr. Carnegie's enthusiasm, they gave both leadership and support to the staff. W. N. Frew, President of the Board from its inception until 1914, and George A. Macbeth, Chairman of the Library Committee from 1895 to 1916, were especially active in the Library's earlier affairs.

Before deciding upon any policies, the trustees and staff looked searchingly at the Pittsburgh of 1895. There was no North Side, as Allegheny was then a separate city. The South Side extended only a short way beyond the Monongahela River; Knoxville, Carrick, and Sheraden were independent boroughs. Much of the East End was productive farm land. The river fronts were lined with steel and iron mills and glass works.

The census of 1890 listed 238,617 Pittsburghers, of whom 31 per cent were born abroad, and 40 per cent were the children of foreign-born parents.

One high school sufficed for the entire city, only 3,851 persons over 15 years of age being registered in any school. There were about 13,000 illiterates, and 12,000 recent arrivals who could not speak English.

Altogether, the prospect of purveying polite literature to the Pittsburgh of 1895 was not a promising one. True, there were about 70,000 old-stock Americans. A few of the immigrant groups, notably the Russian-Jews, were responsive to opportunities for advancement, but most of them were without any tradition of reading. The men worked twelve-hour shifts in the mills; their womenfolk labored long hours in the home, and "fancywork," not reading, was the approved leisure-time activity.

In the light of these facts, it was decided that the new library should feature practical books relating to the dominant industries and vocations, as a means of attracting adults. Equally important was the decision to build a strong department for children and thus raise new generations of readers.

Supplying Pittsburgh workers with practical books was approached from two different levels. The lending collections, especially in the branches, were heavily weighted with books for the millworker and other artisans. Books on carpentry, millwrighting, and diemaking became as respectable as poetry and essays.

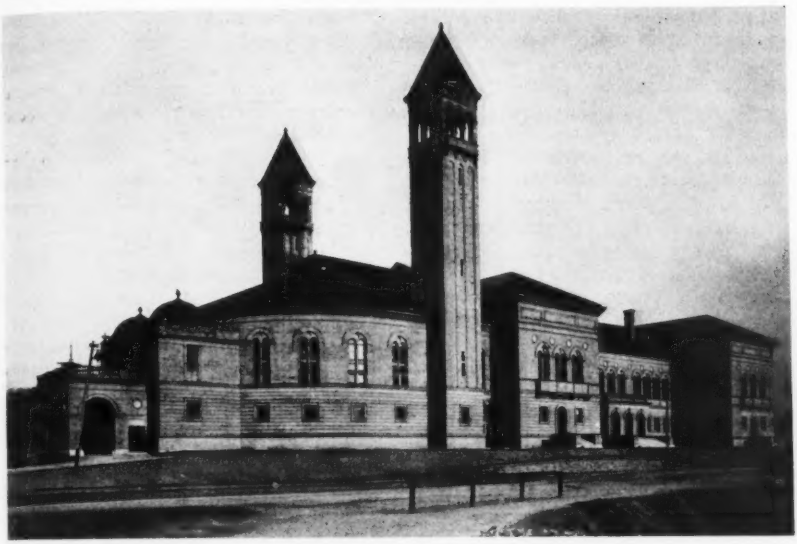
At a higher level, a reference and research collection was developed which became the Technology Department. Mr. Carnegie gave $20,000 to purchase the files of scientific and technical journals; the United States and several foreign governments donated sets of their patent reports.

Throughout the years, the Technology Department has been favored in the allocation of book funds, and it has received frequent gifts. The largest of these, $66,195, was raised in 1944 by the Pittsburgh Section of the American Chemical Society, largely from local industries and foundations; this entire fund is available, as needed, to fill any gaps which are found in the technical collections. Also received in 1945 was $1,500 from the Association of Iron and Steel Engineers which is being used to perfect the collections on iron or steel.

The staff of the Technology Department has always been composed of librarians with scientific or engineering backgrounds. The department was established by Harrison W. Craver, later director of the Library.

HOME LIBRARY GROUP: TEN BOYS, ONE LIBRARIAN, ONE KITTEN

In most respects Carnegie Library is popular in its appeal and activities, built to supply the everyday reading interests of Pittsburghers. The Technology Department goes far beyond this limit; it has been developed as a scholar's library capable of supporting advanced research in chemistry,



CARNEGIE LIBRARY OF PITTSBURGH IN 1895, NUCLEUS OF CARNEGIE INSTITUTE

metallurgy, and all phases of engineering.

Carnegie Library has excelled in its services to boys and girls ever since the day, early in 1898, when Frances J. Olcott was given the task of establishing the children's department. It was pioneer work. Since rather few children could come to the library or its branches, Miss Olcott took the library to them. Small collections of books were installed in homes, and the children of the neighborhood swarmed in to meet the visiting librarian, listen to a story, and borrow a book.

Storytelling became an art, and each children's librarian had a repertoire of folklore and legends.

The Training School for Children's Librarians was established in 1901. It was highly successful from the start, and so many other libraries asked permission for their staff members to attend that it soon became a school of national importance. It has since added general and school library courses, and is now known as Carnegie Library School, part of Carnegie Institute of Technology.

The Library has never been able to maintain a branch within easy walking distance of every child's home. The public schools are, however, so placed. Recognizing that they could be mutually helpful, the public school and library authorities have co-operated since 1916 in the maintenance of libraries in both high and elementary schools. Every Pittsburgh public school has become a Carnegie Library branch for its own pupils. The plan is equally available to the Catholic schools, and several of them house library stations. Nearly one third of all books lent for home reading are now secured by pupils from their own school libraries.

The erection of branch buildings is one phase of Pittsburgh's library history in which we take less pride. Andrew Carnegie made provision for five branches in his original gift, and these were in operation by 1900. Three more were erected with Carnegie funds in the next decade, but these eight branches, the most recent one opened in 1910, are Carnegie Library's only branch buildings.

Five additional branches have since been started in rented store and office space, and one in a public school. One of these, Brookline, is attractively and economically housed in a structure which was built according to library specifications by a private owner.

Andrew Carnegie must share with the City of Pittsburgh the credit for the growth of Carnegie Library. It was Mr. Carnegie's conviction that public libraries are an essential part of a city's educational system; for that reason, cities should, he said, maintain their own libraries from tax funds just as they support their schools. He encouraged cities to establish libraries by providing building funds, but maintenance costs had to come from the city itself.

So it has always been in Pittsburgh. Each year the Mayor and the members of the City Council have given full and fair consideration to the Library's budget. Throughout the half-century they have sought to meet expanding library needs as nearly as the City's finances permitted.

Few municipal libraries have developed really notable book collections without generous support from their friends. Tax funds provide the ordinary flow of books from the publishers but not the unusual and expensive items which give distinction to a library. Carnegie Library's resources have been greatly enriched through several endowment funds.

The first bequest, one of $17,000, came in 1895 before the Library was opened. It was left by J. D. Bernd and the income has been devoted to building a collection on architecture and design.

Next, in 1909, came the C. C. Mellor Endowment of $10,000. Part of the income has been used to develop an outstanding section relating to women, especially their struggle for political and economic rights. Unusual biographies, histories, and books for children have also come from this fund.

More recent endowments have come from Ella M. Carnahan for religious books of a nonsectarian type; from friends who established memorial funds in the names of John H. Leete, David H. Light, Mrs. S. Jarvis Adams, Thomas McMasters, and Emil Bund; and from the local chapters of the Daughters of the American Revolution and the Society of Colonial Dames.

WYLIE AVENUE CHILDREN'S ROOM IN A QUIET MOMENT OF THE GAY NINETIES

FIFTY YEARS OF PROGRESS

1895—The Library established; Main Library opened November 5.

1898—Children's Department established. Lawrenceville branch opened.

1899—West End and Wylie Avenue branches opened.

1900—Mount Washington and Hazelwood branches opened.

1901—Training School for Children's Librarians established: now Carnegie Library School, part of Carnegie Institute of Technology.

1905—East Liberty branch opened.

1907—Main Library greatly enlarged to form the Carnegie Institute building as it exists today.
Service to the blind begun.

1909—South Side branch opened.

1910—Homewood branch opened.

1916—Co-operative plan devised with the Board of Public Education for school libraries.

1924—Business-District branch opened in City County Building.

1928—Knoxville branch opened.
Pennsylvania Room opened.

1930—Brookline and Carrick branches opened.
Business-District branch moved to Union Trust Building, where it became the Business Branch.
Art Division established.

1931—Reader's Consultant's office established, with a grant from the Buhl Foundation.

1938—Music Division established, with aid from The Charles N. Boyd Memorial Musicological Library Association.
David Lindsay Gillespie Reading Room opened.

1943—James Anderson Room for Young People opened.
David H. Light Memorial Record Library established.
Downtown branch opened.

1945—Public Affairs Room prepared for opening November 5.

The David Lindsay Gillespie Reading Room was established in 1938 and will be maintained perpetually from liberal endowments created by Mrs. David Lindsay Gillespie and Mabel Lindsay Gillespie. Since Mrs. Gillespie's death, Miss Gillespie has assumed responsibility for the second Gillespie Room, which will feature public affairs and intercultural relations.

The policies of the early trustees and librarians were so sound and farsighted that the Carnegie Library of 1945 is the natural evolution of their planning.

The Library's first annual report emphasizes the need of strong informational and educational services. The Reference Department was firmly established at the outset and it has always had an early call upon library funds. As its book collection and staff have grown, some subjects have been selected for specialized treatment. The Technology Department and the Pennsylvania, Art, and Music Divisions are all outgrowths of the Reference Department. The Business Branch is essentially a downtown extension of the Reference Department.

The annual reports for 1896 and 1944 both dwell upon the use of informative books. At no time has the Library sought to gain readers by offering large stocks of light recreational reading; educational and cultural needs have always come first.

Cultural reading has been greatly encouraged by The David Lindsay Gillespie Reading Room. This beautifully appointed browsing room offers about 3,000 good books of all times.

The Gillespie Public Affairs Room is to be opened November 5, as a feature of the fiftieth anniversary celebration. Books on current affairs will be given special display and promotion, as part of the Library's contribution to a better informed electorate. Intercultural interests will be emphasized.

It has been "Books Alive Since '95" and the Library now enters its second half-century, determined to make books live in the consciousness of Pittsburghers.

# GOLDEN ANNIVERSARY OF MUSIC HALL

By Marshall Bidwell
*Organist and Director of Music, Carnegie Institute*

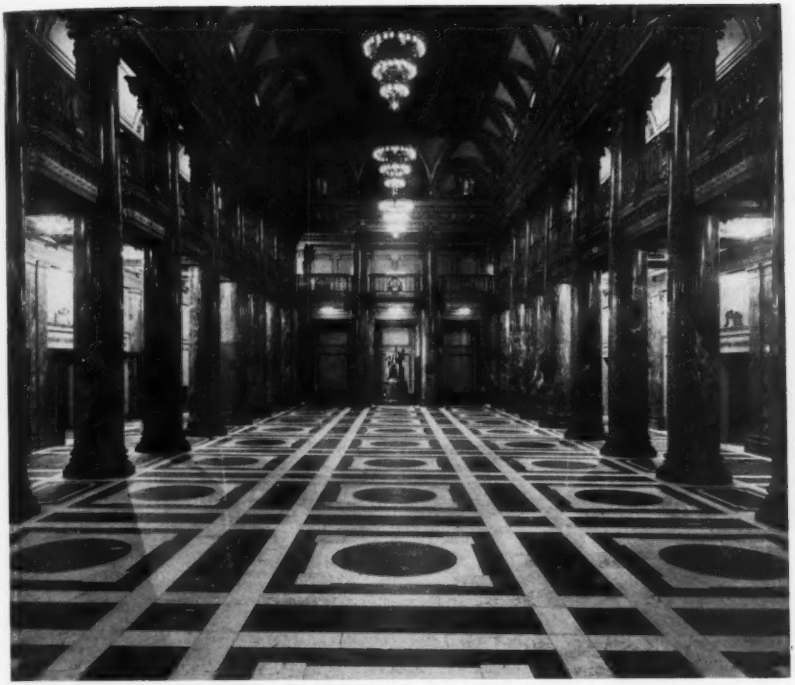
Weber's *Jubilee Overture*, the first composition played in Carnegie Music Hall fifty years ago, will open the organ recital Saturday evening, November 3. Other works played at the first free organ recitals given the week of dedication by the late Frederic Archer, first organist and director of music at the Carnegie Institute, will be featured also at the Saturday evening and Sunday afternoon concerts, November 3 and 4, in celebration of the anniversary. These include the Bach *Toccata and Fugue in D Minor*, the Weber *Overture to Der Freischutz*, *Sonata No. 1* of Mendelssohn, Lemmens' *Sonata Pontificale*, and the *Clock Movement from Symphony in D* of Haydn. In tribute to the Scotsman who gave the Hall, two of his favorites, *Loch Lomond* and *Annie Laurie*, will be played on Sunday.

In the half century since the opening of Carnegie Music Hall, nearly four thousand free organ recitals have been offered for the people of Pittsburgh.

The Carnegie Library and Music Hall were formally dedicated on Tuesday evening, November 5, 1895. Mr. Archer and the Mozart Club of Pittsburgh, with J. P. McCollum as conductor and John Prichard as accompanist, gave the musical portion of the program. Andrew Carnegie made presentation of the key to the new building to W. N. Frew, President of the Board of Trustees.

In his presentation address, Mr. Carnegie expressed his ideal for the purpose of Carnegie Institute: "Ever bear in mind that there has not been in view the entertainment of the cultured musical few, but that this Music Hall is intended as an instrument for spreading abroad among the masses of the people the appreciation and the love of music which musical people already possess. . . . . The artist pure and simple is liable to what is surely a great error. He is apt to think that because he has reached a plane from which he receives the rarest satisfaction only in the highest development of art, in painting or in music, only what he deems the highest and the best should be provided here. . . . No one advocates poor or meretricious literature, music, or art; but there are simple things that are as pure in art as the most elaborate. Indeed, simplicity is a characteristic of supreme genius and we trust that the managers of this hall and art gallery

BACH BY J. MASSEY RHIND
Entrance to Music Hall



The foyer of Music Hall is dazzling in its lavish gold incrustations, its columns of green Tinos marble, and variously colored marble inlaid floor.

will aim to lead the people gently upward, beginning—though not ending—with the simplest forms, 'easily understood of the common people'. . . . If library, hall, gallery, or museum be not popular and attract the manual toilers and benefit them, it will have failed.

In addition to the four organ recitals given by Mr. Archer during the dedicatory week, the Mozart Club presented Handel's *The Messiah* in Music Hall on Thursday, November 7, 1895, and the New York Symphony Orchestra under the baton of Walter Damrosch gave two concerts, one, an all-Wagner program and the other, featuring for the first time in Pittsburgh the Guilmant *Concerto for Organ and Orchestra*, with Mr. Archer at the organ.

The novelty on the Thursday program was performance of A. M. Foerster's *Dedication March*, composed for the occasion. It is of interest that the first theme of this composition is based on the two notes of the scale, A and C, these being Mr. Carnegie's initials; also that the march is scored in F, the initial of the composer. A second earlier Pittsburgh composer was represented in *Dedication March* by inclusion of a strain from Stephen C. Foster's *Old Folks at Home*. Other prominent local musicians of that time were Beveridge Webster, Joseph H. Gittings, Harry G. Archer, Charles C. Mellor, and Kate Ockleston-Lippa.

Mr. Archer held the position of organist and director of music at Carnegie Institute for six years. His successor, Edwin Lemare, was the incumbent from 1902 to 1905, followed by guest organists during the next season

and a half. Dr. Charles Heinroth began his tenure of office in October 1907 and for a quarter of a century this outstanding virtuoso upheld the high ideals of his predecessors. Dr. Heinroth gave his final recital on January 31, 1932, and guest organists played for the remainder of the season, among them being the present organist and director of music.

The great organ, originally having 62 stops, has gone through three reconstructions, the last of which was in 1933, these serving to increase its brilliancy and volume and to keep it in the front rank of the world's most notable instruments. The present Aeolian-Skinner organ has 8,600 pipes controlled by 126 stops. The case in white and gold is of great beauty, an outstanding example of the decorative pipe front and wood-carving arts.

During the past decade important innovations have been introduced into the recitals. Instead of adhering strictly to organ programs, carefully chosen choral and instrumental groups from the city high schools and the Carnegie Institute of Technology have appeared by invitation on Saturday evenings. A further step has been taken in the inclusion of instrumental soloists who played concertos with organ accompaniment, thus giving the public an opportunity to hear many of the great standard works in this genre.

Some more recent features have been the programs for children the first Sunday afternoon of each month; the playing and singing of national anthems of the United Nations; the annual Christmas festival of nationality choirs; and the broadcasting of the organ music throughout Carnegie Institute building.

Music Hall, decorated in soft dull red, white and gold, seats 2,012 persons.

# THE JURY OF AWARD FOR PAINTING IN THE UNITED STATES, 1945

DAVID E. FINLEY

GEORGE H. EDGELL

BARTLETT H. HAYES, JR.

George H. Edgell, Director of the Boston Museum of Fine Arts; David E. Finley, Director of the National Gallery of Art in Washington, D. C.; and Bartlett H. Hayes, Jr., Director of the Addison Gallery of American Art at Andover, Mass., comprise the Jury of Award for the Founder's Day exhibition, Painting in the United States, 1945.

The Jury met at Carnegie Institute on Friday, September 21 to award the following prizes: First, $1,000; second, $700; third, $500; four honorable mentions, of $400, $300, $200, and $100 respectively. Announcement of the prize winning paintings will be made at the Founder's Day celebration, the evening of October 11.

The sole restriction on honors will be that prize winners in Painting in the United States, 1943 and Painting in the United States, 1944 are eligible this year only for awards of higher rank. Otherwise all paintings are eligible for awards, regardless of honors received by the artists in previous Carnegie Institute exhibitions.

George Harold Edgell was born in St. Louis, Missouri, in 1887. He was graduated from Harvard University in 1909, and received the Doctor of Philosophy degree from Harvard in 1913. He was a fellow of the American Academy in Rome from 1910 to 1912. He became a member of the faculty of Harvard University as assistant in fine arts in 1909, and advanced to rank of professor in 1925, which position he held until 1935. He was Dean of the faculty of Architecture and Chairman, Council of the School of Architecture at Harvard from 1922 to 1935. He joined the staff of the Boston Museum of Fine Arts as Curator of Paintings in 1934, and was appointed Director in 1935. He is the author of *The American Architecture of Today*, *A History of Sienese Painting*, and, with Fiske Kimball, *A History of Architecture*.

David Edward Finley was born in York, South Carolina, in 1890. He was graduated from the University of South Carolina in 1910 and received a law degree from George Washington University in 1913. He practiced law in Philadelphia from 1915 to 1917 and served as a Second Lieutenant in the

United States Army during World War I. He was Assistant Counsel, War Finance Corporation in 1921-22 and was a member of the War Loan Staff of the United States Treasury, from 1922 to 1927. He then served as Special Assistant to the Secretary of the Treasury from 1927 to 1932. He was Honorary Counselor to the American Embassy in London during 1932-33. He returned to the practice of law in Washington until he was selected as the first Director of the National Gallery of Art in March, 1938. He is a trustee of the American Federation of Arts, and a member of the National Commission of Fine Arts and of the Smithsonian Art Commission.

Bartlett Harding Hayes, Jr., was born at Andover, Massachusetts, in 1904. He was graduated from Phillips Academy in 1922 and received his Bachelor of Arts degree from Harvard University in 1926. He studied art in the United States for two years and in Europe from 1929 until 1933. In 1933 he became an instructor in art at Phillips Academy. He was Assistant Curator at the Addison Gallery of American Art from 1934 to 1940 and was elected Director in 1940. He is a trustee of the American Federation of Arts, a member of the Advisory Committee of the Institute of Modern Art, Boston, and the Museum of Modern Art, New York. He is Secretary of the Arts Association, Northern New England Preparatory Schools for Boys, and is a member of the Editorial Board of the *Magazine of Art*.

Following the celebration of the forty-ninth anniversary of Founder's Day in Carnegie Music Hall on the evening of October 11, the guests will view the exhibition of three hundred and fifty paintings as installed in the galleries of the Department of Fine Arts.

The exhibition will be open to the public on the following morning and will continue through December 9, during which time the galleries will be open on weekdays from 10:00 A.M., to 10:00 P.M., and on Sundays from 2:00 to 6:00 P.M. —J. O'C., JR.

# WOODLAND PATH

THE chill, star-bespangled nights of early October leave the early morning grass frosted crisp and white. Crimson are the sumachs along the fence-row, but early frosts hang low, only chilling, not freezing, the leaves above into dead, dull brown.

Our October landscapes are like water colors, fashioned with red and blue dyes, and green and yellow pigments.

Sensitive to chills, the dominant green chlorophyll pigments in sugar maple leaves are used up during bright October days faster than they form, thus unmasking the glorious golden yellow carotin pigment.

Other kinds of leaves have sap-dyes called anthocyanins, quite resistant to cold, red when acid, blue when alkaline, and favored by the presence of tannins and sugars. Sumach and dogwood are rich in tannins, the red maple in sugars, and of such are many of the scarlets and reds of our woodland path.

Alkaline blue leaves are rare among the autumn foliage. The little thickets of slender-stemmed, shrubby maple-leaved viburnums along the path often have bluish or blue-edged foliage. The bluish-bronze of ash leaves is unique. Most trees, in fact, can be distinguished by their autumn coloration alone.

The colorful glory of our woodland path lies not alone in foliage but in fruit also. The crimson Indian turnip, the blue Solomon's seal, and the white baneberry all advertise to the animal world that their seeds must be scattered.

Let's stroll along our woodland path on a sunny afternoon in late October when the leaves of the sugar maple are falling, reflecting and suffusing their radiance until they come to rest underfoot like a golden mosaic.—O. E. J.

# YOUR ESTHETIC I. Q.

By Florence William Nicholas
*Section of Education, Department of Fine Arts, Carnegie Institute*

Everyone knows that inner surge of feeling aroused by a fine painting, a beautiful room, or a wondrous scene in nature. This kind of personal experience, sometimes called the beauty experience, is common to all of us from school child to college professor and from ditchdigger to capitalist. The capacity for esthetic enjoyment is chiefly a matter of human equipment provided by nature. All of us are born with the ability to enjoy beauty, that is, to respond to an esthetic stimulus.

Although nature provides us with the capacity for enjoyment of beauty, nature does not designate the particular kind of object that will stimulate the beauty experience. The painting that stirs your soul may not appeal to your friend; the self-adornment practiced by the savage living in jungle wilds does not appeal to the well-dressed Pittsburgher. What you consider beautiful is the result of your own particular conditioning, training, and environment.

Since esthetic reactions vary so greatly, it is profitable and interesting to compare our own personal responses with those of other persons. Two simple tests designed for self-analysis of esthetic appreciation are here described.

*A test for good taste:* Do you approve the kind of design, color, line, and form most generally approved by art experts?

Stop now, and before reading further, decide which of the two pieces shown below—the Chinese temple jar or the Toby jug—is more pleasing to you. Disregard any historic interest in old china and consider only art quality. Both these pieces are on exhibit in the Gallery of Useful and Decorative Arts at Carnegie Museum, and dozens of visitors pass them every day. If you have seen them you may remember their color and that will help to influence your decision.

Most art-trained persons will agree that the temple jar is a far better example of design and color. The contour is based on fine, graceful lines, but the Toby jug is dumpy and shapeless. The temple jar is designed honestly as a jar, whereas the Toby jug is a pitcher disguised as a man's head. This may appeal to some as a very "cute" idea, but on

Chinese temple jar (height 15 inches) in the C. D. Armstrong Collection.
Toby jug lent by C. H. Wallace. Both at Carnegie Museum.

reflection they will agree that the idea of pouring milk out of a man's head is a bit disconcerting. Note also the fine decoration on the temple jar. The pattern is well related to the structure of the jar and is thoroughly stylized, whereas the decoration of the Toby jug is confused and much too realistic for comfort.

The choice between these two pieces of pottery is typical of the hundreds of choices which we must make when we select numerous articles required for daily life. Even a walk through a museum becomes more entertaining and lively when we are searching for examples of good design and color.

*A test to classify esthetic reaction:* Before reading further, try this simple experiment. Look at the reproduction of Henry E. Mattson's "Black Reef" on this page. Continue to look at it for a period of not less than thirty seconds or more than one minute or, better yet, visit Gallery A on the second floor of Carnegie Institute and look at the painting itself. During the period of your attention to the picture, let your thoughts wander as they will.

Responses to the picture vary considerably and you will be interested to know how your reaction compares with that of others. Probably your response may be similar to one of the following types.

1. Association with familiar things and places. Many people recall some particular spot along the coast where they have seen great rocks jutting out of an angry sea. Others recall storms at sea which they have experienced and although the storm experience was not pleasant when encountered directly, yet the painting produces a pleasurable reaction because the experience is now vicarious.

2. Physical sensation. "Black Reef" often stimulates a feeling of being cold and wet, and the impression of being surrounded by darkened skies. You may even feel the force of the water as it thunders over you, and the wet, slippery rocks under your clinging fingers. Since the experience is vicarious, you may also feel a pleasurable emotion.

3. Emotional and abstract responses. Some people respond to "Black Reef"

BLACK REEF BY HENRY E. MATTSON
Permanent Collection of Paintings, Carnegie Institute

with thoughts of fear and despair, others with thoughts of courage and bravery. Some will be thinking of our fighting men who have been shipwrecked at sea.

4. Great ideals and cosmic truths. The painting may stir your consciousness of the great force of the sea and the winds, the mighty crushing waves, and the never ending peril of the rocks. One eleven-year-old boy had such thoughts as these and another: "I think of the time Christ spoke and the waves were still."

NIKE FROM SAMOTHRACE
Original in the Louvre

5. Critical evaluation of technical qualities. People who are interested in creative work may think of the picture in terms of lines, brushwork, or color. Few laymen make this response although we all enjoy skillful work.

6. Personal considerations. Some people can hardly look at a picture without projecting their own lives and personalities into the experience. For example: Some cannot look at "Black Reef" without wondering how it would look over their own mantels.

Probably you will find that your own response to "Black Reef" belongs in one of the six categories listed above. Since there is no recognized standard which indicates the most desirable response, you may judge for yourself whether your own reactions rate high or low. Remember that the nature of your esthetic response depends partly upon the work of art itself. For instance: A pretty little pastoral scene may produce a mild sense of contentment, but it is not likely to cause a tremendous surge of feeling or thoughts about the universe.

For an additional experiment, try to determine the character of your esthetic response to that famous Greek statue, Victory of Samothrace. If possible, look at the statue itself standing in the stair well on the second floor of Carnegie Institute. What comes into your mind? The story of why it was erected? Or where it was found? Do you recall an emblem or medal that bears a representation of the statue? Perhaps you remember bits of Greek history or mythology.

Even if you have had the experience of seeing many wonderful things, you may be thrilled with the dramatic spectacle of the great, poised figure with wind-swept draperies and outflung wings. Perhaps you will remember that it symbolizes a great naval victory, and then your thoughts will leap to the winged victory of our own time. Strange, is it not, that the Greeks more than two thousand years ago created this glorious Winged Victory?

Mrs. Nicholas, who lectures to club and school groups visiting Carnegie Institute's Department of Fine Arts, for the seventh time is co-author of a new text book, *Art for Young America*, which will be published later this fall by Manual Arts Press, Peoria, Ill. Her collaborators are Margaret M. Lee, director of educational work of the Department of Fine Arts; Mabel Trilling, who retired this spring from the professorship of Home Economics Education at Margaret Morrison College; and the late Elmer Stephan, former art supervisor in the Pittsburgh Public Schools.

# RECENT ENGINEERING DEVELOPMENTS—CHIEFLY ELECTRICAL

By B. C. Dennison

*Professor of Electrical Engineering, Carnegie Institute of Technology*

No review of recent engineering progress, even in a field largely electrical, can be anything but incomplete; first, because of the almost infinite number and variety of recent developments; and second, on account of the secrecy surrounding much that has been accomplished during the war years when engineering effort has been devoted almost exclusively to the production of devices vital to the war effort. If, however, one starts back some ten years and follows the major trends, one is amazed by the multitude of advances which characterize the contributions by our larger manufacturers of electrical and associated equipment to the nation's wealth, as Westinghouse, General Electric, and Allis-Chalmers Companies.

In order to systematize this search we have chosen to examine the following major fields of interest:

1. Generation of power.
2. Improvements in equipment.
3. Control.
4. Transportation.

## GENERATION OF POWER

In this country about two thirds of all electrical energy is produced in fuel-burning plants by means of steam turbines driving alternating-current generators. The need for economy in the use of coal, now so evident to every householder, has long been uppermost in the minds of engineers. In the accomplishment of this end there has been continuous improvement in boiler and steam-turbine efficiencies; to a lesser degree in electrical generators which, even twenty years ago, had reached an efficiency above 97 per cent.

Steam-Turbine Generator Sets. Improvement in steam-turbine performance has been accomplished in part by modifications in design and in part by increasing the pressure and temperature of the entering steam. General trends in these latter are shown by the average figures given in the table below.

At least one station is operating at a steam pressure of 2,500 pounds per square inch at 950° F. and a coal consumption below the 0.85 value and the trend is now toward temperatures of 1000° F. or more. At 950° F. steam turbine blades glow red hot.

At the same time that steam-turbine pressures and temperatures have been rising, the speeds of the turbines have been increasing until now there are machines of 80,000 kilowatts running at 3,600 revolutions per minute. At this speed the periphery of the generator rotor is running at about 400 miles per hour, while the low-pressure blades of the turbine revolve at nearly twice this speed, exceeding the velocity at which

| Year | Steam Pressure | Steam Temperature | Coal Consumption |
|---|---|---|---|
| 1926 | 220 lb. per sq. in. | 500° F. | 2 lb. per kw-hr. |
| 1936 | 420 " " " " | 660° F. | 1.4 " " " " |
| 1936–1944 | to 1,200 " " " " | to 925° F. | 0.85 " " " " |

sound waves travel in air. Each such turbine blade is acted upon by a force of some 90,000 pounds, tending to tear it from its fastening to the turbine rotor. All this means that the electrical engineer has had to lean heavily upon the mechanical engineer and, especially, upon the metallurgist, for mechanical design and for continually improving materials.

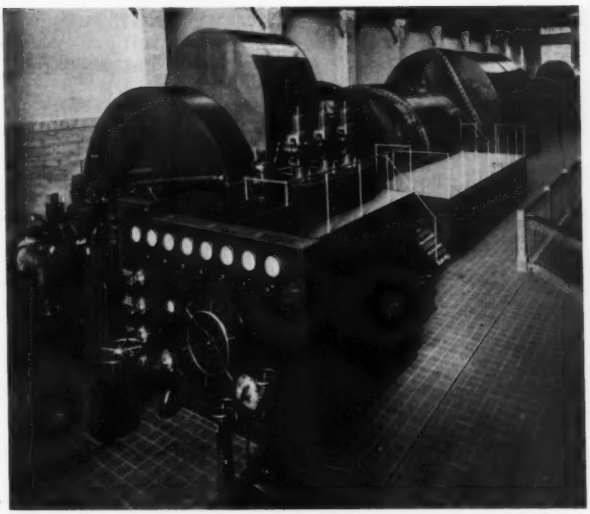


Fig. 1. Hydrogen-cooled turbine-generating unit built by Allis-Chalmers.

Nearly all modern turbine generators are cooled by the passage of hydrogen, rather than air, through the ventilating passages. (Fig. 1.) Hydrogen reduces the windage losses to about one tenth the value in air and still carries away heat more effectively so that a generator rated 132,000 kilowatts when air-cooled may be rated 150,000 kilowatts if cooled by hydrogen, and there is less danger of fire within the machine since hydrogen does not support combustion.

In 1941 one of the three large companies already mentioned was building a total of two and a half million kilowatts of turbine generators for central station service and in 1944 it was constructing nearly eight million horsepower of steam turbines, largely for marine propulsion. Not the least gain resulting from the use of high-steam temperatures and pressures is the ability of turbine-driven ships of the American Navy to steam their great distances because they consume one-third less fuel per mile than ships of other navies.

Mobile Power Plants. Several manufacturing companies have built, for government use, mobile power plants of 5,000 to 10,000 kilowatts each, mounted on railway cars and complete with boilers, steam turbines, electric generators, transformers, and control equipment. If the enemy had been able to bomb the power plants of our industrial districts, these mobile plants would have been immediately available for rapid movement to the point of need and would have gone at once into service.

Water-Wheel-Driven Generators. At the same time that millions of horsepower of steam-turbine generator sets were being turned out for the central stations of the country, large numbers of great water-wheel units were built and installed, immensely larger and heavier than the swift-moving steam units, since the water-wheel-driven machine is inherently a relatively low-speed device. In 1942 the tenth main generating unit of the Bonneville station went into service. It runs at only 75 revolutions per minute, is rated 60,000 kilowatts, and the weight of its rotating member, plus water thrust, is 3,000,000 pounds (1,500 tons). At Boulder Dam, units of 82,500 kilowatts have been installed, each weighing 1,000 tons and operating at an efficiency

of better than 97 per cent. Eighteen units of 108,000 kilowatts each are being constructed and installed in the power house at Grand Coulee Dam.

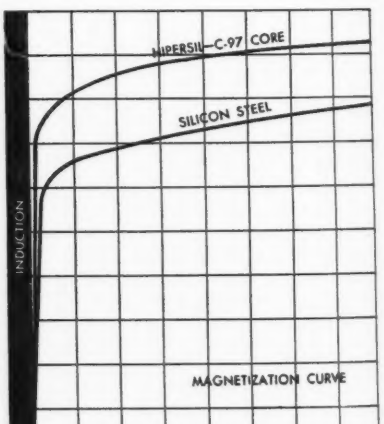
New units for the Dnieprostroi hydroelectric development in Russia will soon be built to replace the 77,500 kilowatt units partially dismantled by the Russians at their withdrawal and later destroyed by the Germans when they were forced to retreat. Nine new generators of 90,000 kilowatt rating and weighing 1,000 tons each will be built by one company alone.

### IMPROVEMENTS IN EQUIPMENT

TRANSFORMERS. Without transformers to step up system voltages for economical transmission, and down again for utilization, modern power systems would be impossible. For many years there have been minor improvements in methods and materials employed in transformer construction. By the addition of silicon in the steel laminations used in core construction it had been possible to reduce transformer losses, sizes, and costs. Further improvements came slowly until in 1937 one company devised a new method of core construction, replacing the slow process of hand assembly of thin flat pieces of steel by a method of machine winding the core in a continuous ribbon of steel around the machine-wound coils. Accordingly the "Spiracore" transformer appeared with a marked reduction in cost and improvement in performance. Other companies quickly devised modifications of this method. This change in construction was quickly followed by the production of new and better grades of steel for these wound cores, called by one company, "Hipersil," in which the grains of steel are lined up all in one direction by a special method of cold rolling. Hipersil can accommodate one-third more magnetic flux than older steels which (Fig. 2) further reduces transformer weights and costs and improves performance.

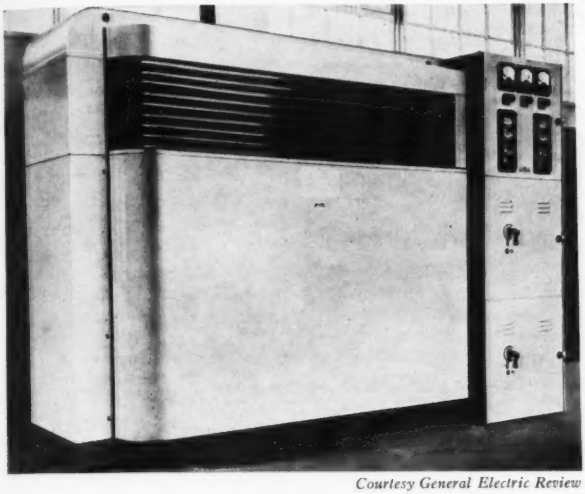
New transformers have recently been made "completely self-protected" to prevent their being damaged by lightning or other disturbances, or by overload. For the cooling of transformers and to prevent the entrance of moisture, they have long been enclosed in steel tanks filled with oil. This presents a considerable fire hazard so that such transformers, if placed indoors, must be put in special fireproof vaults. Some transformers are now being cooled by noninflammable liquids bearing such trade names as "Pyranol," "Inerteen," and so on. A further development in transformers for use within buildings has been the design of special air-cooled transformers enclosed in handsome steel cases rivaling in appearance the modern refrigerator cabinet. (Fig. 3)

Air-cooled transformers furnish a typical example of the reduction of weight and cost of electrical equipment. The 50-kilowatt transformer as built in 1938 weighed 1,050 pounds, in 1942 it weighed 580 pounds, and in 1944 its weight had been reduced to 450 pounds, a reduction of 60 per cent. This was brought about largely by the use of machine-wound cores of "Hipersil" strip.




*Courtesy Westinghouse Electric Corporation*

Fig. 2. Comparative curves of Hipersil and ordinary transformer steel.



*Courtesy General Electric Review*

Fig. 3. Dry-type load-center unit substation.

Some idea of the range of transformer sizes may be gained by comparing the tiny audio-frequency transformer having the dimensions of ½-inch by ⅝-inch by 1-inch, and a great power transformer rated 72,500 kilowatts and weighing 491,000 pounds.

Testing transformers capable of producing more than one million volts have for some time been available.

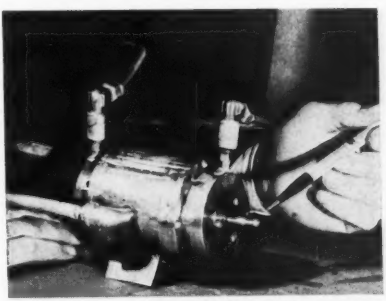
Motors and Generators. Fibreglass insulation, much used in transformers, has also been applied to motors and generator windings, conserving space, reducing costs, and permitting operation at higher temperatures.

For warplanes great numbers of motors and generators have been built of almost unbelievably reduced size and weight. Continuous-duty motors rated 7½ horsepower and weighing only 14 pounds are available, especially designed for use at 40,000 feet elevation. Ordinarily motors of this rating weigh from 200 to 300 pounds, depending upon speed. Alternators are built for airplane service delivering 30 kilowatts and weighing 80 pounds. Water-cooled motors of 35 horsepower at 18,000 revolutions per minute are built in a frame only 4 inches in diameter and 10 inches long (Fig. 4), and there is now a 1,000 horsepower motor only 28 inches in diameter and 39 inches long.

By the use of silicone plastic, a new insulating varnish which remains pliable from −75° F to 575° F., it is possible to operate motors and generators at such heavy loads that ordinary insulation would be destroyed.

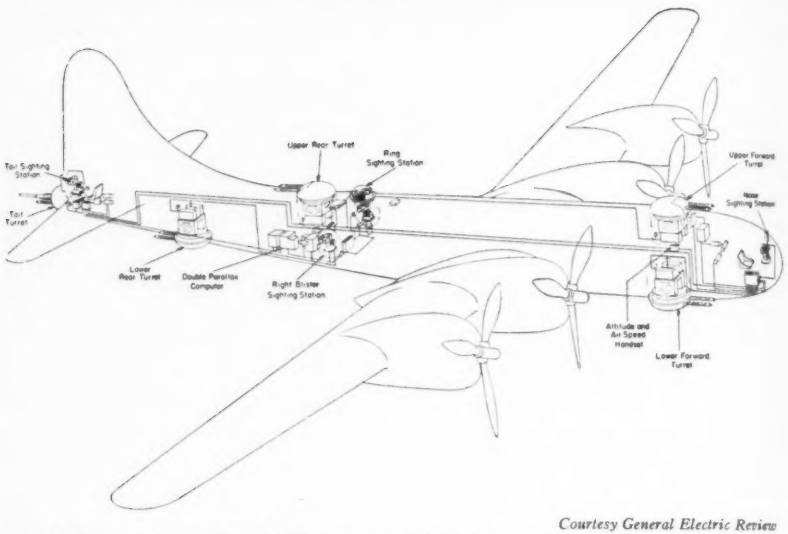
In 1943 one electrical manufacturer built more than one million motors for use in tankers. In the same year this company furnished more than two million motors for the use of the armed services, ranging from a fraction of one horsepower to 13,500 horsepower. Each B-29 superfortress requires some 120 small motors. It is said that the man-hours of work in building motors for the B-29 program equal all the labor required in peace times for the building of small motors for all purposes.

Electric Lamps. The old carbon-



*Courtesy General Electric Review*

Fig. 4. Small but mighty, this motor weighs only 7 pounds and is rated 3 horsepower at 120,000 revolutions per minute.




*Courtesy General Electric Review*

Fig. 5. Cutaway sketch of the B-29 Superfortress and its electrical remote-control gunnery system.

filament lamp gave about 2 lumens per watt of power consumed. Special treating of the filaments brought this figure up to about 3.5 lumens per watt. The 25-watt tungsten-filament lamp gives about 10 lumens per watt and the 100-watt size, gas-filled, gives some 16.5 lumens per watt, a great advance over the carbon lamp. In 1934 sodium-vapor lamps giving 29 lumens per watt were offered for highway lighting, and in 1938 fluorescent lamps came into use with an efficiency of 60 or more lumens per watt, and with a wide range as to color.

Since then fluorescent lamps have become standard for the illumination of large interiors. They are being continually improved in quality and reliability as well as reduced in cost. In 1939 one finds sealed-beam headlamps for automobiles greatly improving highway visibility during night driving. Germicidal lamps also were offered which, with an expenditure of only 1 watt per 100 cubic feet of room volume, produce a bacterial reduction equivalent to 100 changes of air per hour and are especially recommended for use in operating rooms, nurseries, rest rooms, and so on. For war use, searchlights of 800 million candlepower were announced in 1940.

X-RAY TUBES. A few years ago, X-ray tubes were being built for 50,000 volts. This increased to 400,000 volts in 1934, to 500,000 volts in 1937, 1,000,000 volts in 1938, and 2,000,000 volts in 1944. These last are capable of taking pictures through one foot of solid steel and they sped the war production by cutting down the time required for inspection of vital warplane parts from hours to minutes, revealing defects which, if undetected, might have cost the lives of our fighting men.

## CONTROL

Only a brief mention can here be made of advances in electrical control. Two devices of especial importance are the amplidyne and the selsyn which, in conjunction with electronic devices, are of especial value in the operation of anti-aircraft guns and of warplane guns and turrets. The am-

plidyne is a special generator, or motor, which serves as an electromagnetic amplifier handling considerable amounts of power. The selsyn consists of two motorlike devices connected electrically; if one is turned through a certain angle the other turns through the same angle. By means of these instruments, rapid and accurate remote control of anti-aircraft guns is effected. In the control and sighting of guns in the B-29 superfortress (Fig. 5) the gunner can be in the pressurized cabin of the plane, rather than in the cramped quarters of the gun turret, and can control several turrets from one point. Electrical computers also play a part in the accurate aiming of the airplane guns at the moving target. From the gunner's sighting station, a selsyn control system, electrically connecting the sight with the turret and guns, swings the turret and aims the guns, and the computer works out the required "lead" on the target. The electrical gun charger also does a remarkable service, cocking the gun, recognizing defects in ammunition, helping reject a defective round, and inserting a new one. If a gun repeatedly fails to fire for eight rounds, the charger decides that something is wrong and cuts the gun out of action. Each B-29 plane uses 82 selsyns for gun control.

In the control of large power systems it is necessary that electric circuits be interrupted promptly in case of short circuits or similar faults. For this purpose automatic circuit breakers are used which open the circuit under oil. Twenty years ago the best circuit breakers cleared a fault in some 25 cycles or about one half second. Later this time was reduced to 12 cycles, then to 8 cycles. Now faults are cleared in 5 cycles or even 3 cycles. At the same time these circuit breakers have been reduced in weight by 20 per cent and the amount of oil by 33 per cent, while the power which the circuit breaker can interrupt has increased from 2½ million kilovolt-amperes to 3½ million kilovolt-amperes.

TRANSPORTATION

Space does not permit more than a mention of some significant developmeans in transportation recently, such as the PCC (President's Conference Committee design) streetcar now standard in Pittsburgh and many other cities, the use of trolley busses, diesel-electric busses, and combinations of these. In 1934 the new electric locomotives of the Pennsylvania Railroad completed their test runs to 100 miles per hour, utilizing alternating current. They were soon hauling trains on a mile-per-minute schedule and this electrification is being extended.

Diesel-electric locomotives in large numbers were built during the war for use at home and on the invasion front.

Perhaps no more fitting summary of this brief review could be written than to repeat a statement made by R. C. Muir, vice president of the General Electric Company; "The scientist, engineer, and manufacturer have formed a team which in three short years has given our fighting forces more and better equipment than that of our enemies who have been at this war job several times as long as we have."

THE WAC, THE PARATROOPER, AND THE ANCIENT GREEK WARRIOR

# POSTSCRIPT TO "A BRIEF HISTORY"

By Hervey Allen

This article, part of the correspondence between Hervey Allen and Rose Demorest after her *Pittsburgh—A Brief History* appeared, is printed with permission of both authors. Historical novelist, poet, critic, teacher, and lecturer, this native Pittsburgher became widely known for *Anthony Adverse*, published in 1933. *Action in Aquila*, a Civil War story, followed in 1938. Mr. Allen is now working on *The Disinherited*, a series of six novels of American history, also for Farrar & Rinehart, Inc., of which *The Forest and the Fort* and *Bedford Village*, both telling of frontier days in western Pennsylvania, have been published.

The pamphlet, *Pittsburgh—A Brief History*, is extremely well done and a valuable thing to have and to disperse in the community. Most American communities, especially large industrial centers like Pittsburgh, tend to become entirely oblivious of the past. Such a pamphlet not only satisfies the curiosity of the present inhabitants of the place, but I also think tends to further a spirit of intelligent historical growth.

While I realize the necessity for condensation, I do feel that the section covering 1760 to 1800 omits one of the most important events in the history of the early town at the Point; namely, the entire chronicle concerning Pontiac's rebellion, the siege of Fort Pitt in the summer of 1763—by far the most important military function performed by the fort—and the relief of the fort and frontier by Colonel Bouquet that same summer.

On the way from Ligonier to Pittsburgh, Colonel Bouquet fought the Battle of Bushy Run, a little east and north of Turtle Creek. This was by far the most important Indian battle ever fought on the English frontier! It retrieved Braddock's defeat of a decade before, and, in point of fact, made possible the growth of the town about Fort Pitt and the opening up of the whole West later on. Also, Colonel Bouquet made an expedition into Ohio from Fort Pitt as a base and imposed a peace on the Indians. Much of this has tended to be forgotten, due to the fact that the Revolution seems to hang a curtain between colonial times and those that follow.

Colonel Bouquet was much more important in the story of Pittsburgh than Forbes, Washington, Braddock, and many other names that preceded him and came after. Of course, the classic reference for this is Parkman's *Pontiac's Conspiracy*.

It also would seem that a few lines should be given to the interesting incident of Lord Dunmore's War and the claim of Virginia to the section now known as Westmoreland and Allegheny counties.

Few realize that the Virginians, just prior to the Revolution, had made this claim good and set up Augusta county as part of Virginia in western Pennsylvania. There was, in effect, a war on between the colonies of Virginia and Pennsylvania. Fort Pitt was captured and held by the Virginians and the Pennsylvania authorities were driven out. The Revolution intervened but the growth of the town about Fort Pitt was for a while due more to settlers from Virginia than from the Pennsylvanians, who were temporarily stopped.

A great many of the Virginians, some of whom were undoubtedly royal sympathizers, later removed from Pitts-

burgh to Louisville, after which the growth of Pittsburgh as part of Pennsylvania was "resumed."

I think it might also be helpful and interesting to state that Fort Pitt was sold for its old bricks and material, and that for a long time another fort, a stockade, afterward stood north of it and not on the Point but near the banks of the Monongahela, if I recollect rightly, not far from Smithfield Street and the Diamond. [Fort Fayette, the other fort mentioned by Mr. Allen stood, not near the banks of the Monongahela, but between what is now Ninth Street, French Street, Garrison Way, and Exchange Way, and at the time of its construction was at the end of Penn Avenue.] It was this fort which was used as a base later on for Anthony Wayne's expeditions until he built up a farther base, Fort Washington, down the Ohio at Cincinnati.

I am constantly receiving letters about the old "blockhouse" that has Colonel Bouquet's name on it, now at the Point. There is so much curiosity about this and so much misinformation that it might be well to say something about it and make the point that it was only a very small building.

Colonel Bouquet built it to provide flanking fire along the Allegheny side of the old Fort Pitt. Its construction was recommended to him by Captain Ecuyer, who defended the fort in 1763 against the Indians, and found himself hampered because the Indians crept close to the walls of the fort along the Allegheny and took shelter under the banks. The old blockhouse gave a flanking fire looking down the river toward the Point.

Bouquet put his name on it because it was built while he was in command of the fort, preparing for the expedition down the Ohio. He was then Colonel of the Royal Americans or the 60th Foot. Later he was promoted to Brigadier General and put in charge of the southern command of the British colonies. He died of yellow fever at Pensacola, Florida, in 1765.

THE BLOCKHOUSE

## BROADCASTING

CARNEGIE INSTITUTE will go on the air at 9:15 A.M., Tuesday, November 20, from station KDKA in a program similar to that enjoyed by 25,000 school children each year on their visits to the Institute under the Board of Education's plan headed by H. G. Masters. Dr. O. E. Jennings, Jane A. White, Margaret M. Lee, and Amelia Wheeler are cooperating with Dr. A. J. Miller in preparing the material which will be dramatized and presented by the KDKA staff. The program is one in the new series of fifteen-minute school-day programs sponsored by KDKA.

### *TREASURE CHEST*

The gold enameled repeating watch with elaborate chatelaine owned by Horatio Nelson, the great British admiral, may be seen at Carnegie Museum. Lord Nelson sacrificed arm, eye, life for England. In the Battle of the Nile he destroyed the French fleet; at Copenhagen he raised the telescope to his blind eye and declared he could not see Parker's signal to retire from battle. Before the victorious action over the Spanish and French fleets at Trafalgar in 1805, in which he lost his life, Lord Nelson signaled, "England expects every man to do his duty!" The watch is one of the H. J. Heinz collection of a hundred representative timepieces, which also includes a pocket sundial and a sedan chair watch.

# SUMMER-TIME VIGNETTES

GALLERY-GOING, STORYTELLING, SKETCHING, AND COLLECTING WERE PART OF THE VACATION PROGRAM AT CARNEGIE INSTITUTE

# CARNEGIE INSTITUTE WELCOMES

PITTSBURGH school children began their regularly scheduled visits to Carnegie Institute on September 17 with the sixth grades of Allen and Rochelle Elementary Schools opening the season. During this semester every sixth-grade class in the Pittsburgh public schools will spend a day in the Institute as guests of the Department of Fine Arts, supervised by Margaret M. Lee, director of educational work, and of the Museum, under supervision of Jane A. White, assistant curator of the Carnegie Museum Section of Education. Visits of the public school eighth-graders, which are optional with the teachers, will open in mid-October; all parochial school tenth grades, a few ninth and eleventh grades, and Cathedral School sixth through eleventh will open their Institute visiting program on November 5. During the second semester of the school year, fifth and seventh grades of the public schools will come daily, Monday through Friday. Amelia Wheeler and Mrs. Florence William Nicholas will be the instructors in the Fine Arts Department and Helen L. Bailey, Mildred E. Boot, Hallie J. Smith, and James Bright, in the Museum.

By special request, children from the Waynesburg schools are studying at Carnegie Museum each Saturday morning, for the sixteenth year; also the budding nature scientists from Ross Township come each Friday morning.

Saturday is a busy day at the Institute. The Tam O'Shanters are the 700 lively ten- to twelve-year-olds, selected by their teachers in the public, private, and parochial schools to fill the Institute quota, who come each Saturday morning for sketching under Amelia Wheeler. The Palettes, the eighth, ninth, and tenth graders who have spent three years as "Tams," come also Saturday mornings for instruction in painting by Katharine McFarland, art director of Wilkinsburg Public Schools. A second section of Palettes, the beginning group of thirteen- to sixteen-year-olds, recommended by their school art teachers, come Saturday afternoons for sketching under Dorothea Alston, art teacher at Allegheny High School. These two sections of Palettes number approximately 300 boys and girls.

Nature Club will meet every Saturday morning, beginning November 3, attended by sixth- to eighth-grade children selected by their science teachers, for instruction by the different Museum Curators. The Junior Naturalist Club, open to any boy or girl interested in natural science, in the six to sixteen age group, also meets on Saturday morning under Thomas Brazelton. A third group, the Natural Science Club, composed of children having special interest and training, meets for laboratory work in mineralogy, zoology, and vertebrate paleontology, each Saturday morning.

Outside clubs and organizations are making arrangements for conducted tours of the Fine Arts Galleries and the Museum. The Woman's Club of Forest Hills, Chi Omega Alumnae Association, the Junior Woman's Club of Etna, the Pittsburgh Literary and Musical Club, and the Goucher Alumnae Association have dates to visit the Painting in the United States, 1945 exhibition.

Storytelling will be the attraction in the Boys and Girls Room at the Central Branch of Carnegie Library of Pittsburgh each Monday at 4:15 P.M., beginning October 1, under supervision of Elizabeth Nesbitt, Children's Librarian. The Branches also will have regular storytelling hours through the winter after school: Lawrenceville and West End on Monday; East Liberty and Homewood on Tuesday; Hazelwood Branch and Soho Station on Wednesday; Wylie Avenue Branch and Aliquippa Station on Saturdays at 10:30 A.M.

# THE GARDEN OF GOLD

As the Carnegie clan sweeps into the home stretch toward the $4,000,000 goal, gifts to the 1946 Carnegie Tech Endowment Fund total $3,214,210.64 as of September 1, including $48,500 in pledges. The loyalty of the sons and daughters of Skibo and their powerful friends in the financial and industrial world bodes well for success at the finish line—to ride this peacetime metaphor a little hard. When the winner comes in, Tartan flying, the Carnegie Corporation of New York sits in the judges' stand, ready to award $8,000,000, a total additional endowment of $12,000,000 for Carnegie Institute of Technology.

The larger gifts during the summer include payment in full by the Buhl Foundation of its grant of $333,333 to endow the Buhl Professorship in Electrical Engineering, a check for this large sum having been received in July. This establishes on a permanent basis the professorship which the Foundation has been sponsoring from year to year.

The American Radiator and Standard Sanitary Corporation contributed $10,000 for the Theodore Ahrens Professorship in July.

With a gift of $10,000, Hymen Goldbloom this summer established the Milton Gilbert Goldbloom Memorial Scholarship Fund in memory of his son, an honor graduate of the Tech Drama Department in 1937. Milton Goldbloom was killed the July following his graduation, while traveling in France.

Several firms in the printing field and allied lines have contributed $100 or more to the Tech Endowment Fund, earmarked for the Department of Printing Research Fund: Capitol Printing Ink Company Inc., of Washington, $250; Frederic S. Balch of the Schuylkill Paper Company of Philadelphia, $150; Clarvan Corporation of Milwaukee, $100; McCormick-Armstrong Company of Wichita, through A. Guy McCormick, I'29, $500; Milwaukee Graphic Arts Association, $100; and S. Toof Brown of S. C. Toof and Company, Memphis, $100. Contributors to the Department of Printing Scholarship Fund include Elchak Publishing Company of Charleroi, $100, and Charles E. Craw, I'26, $500. The total of gifts to the Department of Printing Scholarship Fund is $6,587.50 and to the Department's Research Fund, $3,125.00.

The Chemistry Department Research Fund was recipient of $252.11, the royalties on *Chemistry of Engineering Material* for the first half of 1945, turned over by the Department.

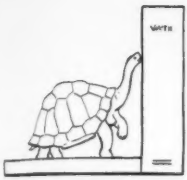
Harold J. Apell sent $111 for the Norman Apell Memorial Scholarship Fund in June and Dr. and Mrs. Herbert L. Spencer have given a $100 United States Savings Bond for the Ihrig-Lawler Memorial Scholarship Fund.

Nearly five hundred Carnegie Tech alumni sent contributions to the Endowment Fund during June, July, and August, this large number making it impossible to report the name of each.

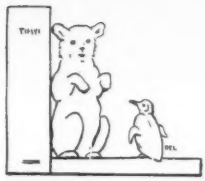
* * *

As this issue of CARNEGIE MAGAZINE goes to press, the announcement is made of a most generous contribution to the Endowment Fund of $100,000 by the Pittsburgh Plate Glass Company. In making the announcement, H. B. Higgins, president of the company, stated it was made to inaugurate a plan for scholarships in which the recipients will study at Tech during the college year and work part of the time in the plants of the company.

This gift, in addition to those reported as having been received up to September 1, brings subscriptions to the Endowment Fund to approximately $3,300,000, for which Tech will receive two for one under the offer of the Carnegie Corporation of New York.



# THE SCIENTIST'S BOOKSHELF



By M. Graham Netting

*Curator of Herpetology, Carnegie Museum*

THE NATURE OF THE BEAST By Ruth Crosby Noble. Garden City: Doubleday, Doran and Co. 1945. 224 pp., 7 plates. $2.75. Carnegie Library call no. 591.51 N38.

Having developed the power of speech, we converse chiefly about the doings of our own species, but the cleverness of our pets and the idiosyncrasies of wild creatures occasion almost as much discussion as the weather. Hereafter anyone who astounds his friends or confounds his opponents with his understanding of animal actions may be suspected of possessing a much-thumbed copy of *The Nature of the Beast*.

The death of Dr. G. Kingsley Noble, in 1940, creator and curator of the American Museum of Natural History's unique Department of Experimental Biology, cut short the highly productive researches of a leading herpetologist and an outstanding experimental biologist. One of his unfinished projects, a popular book on animal behavior, has now been carried to completion by Mrs. Noble, who assisted her husband in many of his field investigations. She has summarized Dr. Noble's work so well and interpolated so many pertinent findings by other scientists, that I find myself wondering if "G. K." could have done any better.

I despair of reviewing this book adequately within the limits of my space. Each of its seventeen chapters, concerned with such subjects as intelligence, emotions, courtship, parenthood, play, abnormal behavior, emphasizes the fundamental truth that animals are like us in some ways, yet wholly different in others. We can see ourselves—not always as others see us—but a rigid creature, like a mackerel, cannot see itself, and "having no adequate concept of his own body. . . can have no clear conviction that his associates are of his kind." Many animals have senses which we lack, for there are not five senses but forty or more, or they may have the same senses developed in different degrees. For instance: The housefly can distinguish sugar from saccharine. A male moth can recognize a female's perfume a mile away. The four-eyed fish can see above and beneath the water simultaneously. A rattlesnake's pits enable it to detect the heat emitted by a mouse passing in the night. A robin can hear an earthworm crawling in the ground. All these are beyond our capabilities, but we are probably unique in the ability to enjoy music or to appreciate a beautiful sunset.

The vast majority of animals "repeat automatically the activities of their ancestors." Since "they are born not to reason things out but to react to particular signals," they lack resourcefulness. Yet many animals, especially those high in the evolutionary scale, learn through experience. A pet crow learned to recognize the food-proffering right hand of its keeper as a friend, the restraining left hand as an enemy. Chimpanzees make as high scores as human subjects in certain food-recovering tests, but the most ignorant human has "more than twice as much thinking tissue" as the smartest chimpanzee. The distinguished dog, Fellow, recognized four hundred words, but the sound effect of a sentence is of more import

to most dogs than the words used. Try "Hole in your socks" in place of the similar sounding "Go to your box."

In the chapter on animal "Societies," the author points out that many features of human gatherings, except "intellectual intercourse," are duplicated among animals although the contributing factors may be totally different. Siamese gibbons are monogamous rather than polygamous, not for any laudable reasons, but because their vile tempers make larger groupings well-nigh impossible. Every zoo visitor has observed grooming, often misinterpreted as flea picking, which is one of the strong social ties among monkeys and apes. Grooming occasionally progresses beyond cleansing the hair of dust, fragments, and occasional insects; some male monkeys rearrange the female's hair, and even do some plucking to alter her appearance. In general, New World monkeys are more sociable and agreeable than their Old World relatives; among the latter, for example, male baboons are brutal to their wives, who in turn mistreat their children. Some animal contacts appear "to be the result of a genuine craving for society"; prairie dogs apparently enjoy visiting each other's burrows.

There are no social climbers among ants; fifty million years of group living may have proved that co-operation is more desirable than competition, or the ant brain may be too primitive to cope with the problems of "society." Many backboned animals, however, struggle to dominate their fellows, or submit to being dominated by them. "Many fish devote most of their energies to trying to improve their social status," and there is social gradation even among trout in a stream. Chickens in a barnyard have a more complicated social hierarchy than any small town can boast of, based on who can peck whom without being pecked back. A subservient female lizard may improve her social position by "marriage," and a bird that mates well above herself has been observed to change in personality from timidity to dignified self-assurance. Chimpanzees learn more rapidly from their superiors than from their social equals. Mrs. Noble reminds us, however, that, among the more intelligent animals, the dominant individual tends to be a leader rather than a despot.

Some animals—wild horses, hares, and mountain sheep—are rolling stones and "show no interest in established residences." Others are socialistic—some birds, howler monkeys, bees—holding property as a group and uniting in its defense. Many others favor private ownership, recognizing personally dominated home, feeding, or nesting territories, and neutral grounds between neighboring properties. Usually an animal "will not fight as hard to steal another's property as he would to defend his own."

There are good anecdotes aplenty in this book. For example: The tale of Gunda, the Indian elephant that saved pennies for rainy days; and the story of the bittern that fell in love with a zoo director. There are far more entrancing, but more lengthy, interpretations of animal behavior than any which I have cited. Most timely is the discussion of fighting among animals; the studies of Wallace Craig, in particular, refute the homily that war is a biological necessity. Virtually all animals defend their rights, but those least inclined to fight among themselves are generally superior to quarrelsome related species. "This pacifism. . . . is the result of a hard-boiled long-range demonstration that fighting does not pay and is not necessary. Tolerance and readiness to get along with others advance the species further in the long run."

The photographs making up the plates are clear, and varied in subject. The extensive bibliography is of value to the reader who may crave greater detail, and the index is gratifyingly complete. *The Nature of the Beast* is required reading for all who wish to understand animals.

## THE EDITOR'S DESK

*Unconquered*, a new Pittsburgh movie, is scheduled for production by Paramount next spring and already the studios are turning to Rose Demorest, Librarian of the Pennsylvania Room at Carnegie Institute, for help in their research work. The picture, to be directed by Cecil B. DeMille, is based on a novel by the same name now being written by Neil Swanson, which will be issued simultaneously by Doubleday, Doran and Company. The story occurs in the time of Fort Pitt.

Mr. Swanson, a native of Minneapolis, as you may know, was managing editor of the *Pittsburgh Press* in 1930, leaving in 1931 for the *Baltimore Evening Sun*, where he is now editor of the *Sun* newspapers. He signed a lifetime contract with Farrar and Rinehart in 1938 to write thirty historical novels of the advance of the American frontier, of which seven, among them *The Judas Tree*, have so far appeared.

Miss Demorest had helped in work on another motion picture of Pittsburgh locale, Metro-Goldwyn-Mayer's *The Valley of Decision*, which was shown here this past summer. She was paid the public tribute—a rare generosity in authors—of being "enormously interested and helpful" to Marcia Davenport, the novelist, in a two-page advertisment appearing in *The Bulletin Index* for July 21.

Not a single complaint about food received—was the amazing report of the officer in charge of the naval station at Carnegie Tech the past year and a half. During this period 19,864 enlisted men received housing, boarding, and recreation at Tech, as did also many of the nearly 1,000 officers stationed here. The naval officer in charge told President Doherty he had received letters of appreciation from all but two of the 177 ships whose crews were stationed on campus.

During the period in which the Army Specialized Training Program unit and naval personnel were on campus, from May 10, 1943 to June 19, 1945, Carnegie Tech served 1,188,512 meals to the men.

Ottmar F. von Fuehrer, Museum artist, left September 15 for the country north of Jasper Park in British Columbia. He will make sketches and paintings and collect accessories for background of the new caribou group on which work will soon start. The caribou were collected in this region by Leonard Woods on an expedition made in company with J. Kenneth Doutt, curator of mammology, in 1941.

Lest you are wondering if your September issue of CARNEGIE MAGAZINE has fallen by the wayside, the Editor announces that dates of publication have been changed. The ten yearly issues will henceforth be dated October through July; the October number is the first to be printed this fall.

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